

Amendments to the Claims:

The following listing of claims replaces all prior versions, and listings, of claims in the application:

Listing of Claims:

1-14. (canceled)

15. (New) An *in vivo* animal model for testing a compound in locally targeted odontogenic organ and associated periodontal tissues, comprising a mandibular incisor of a mammal with constantly growing incisors and a window in an alveolar bone overlying the incisor's apex or along radicular surface of the incisor.

16. (New) The model of claim 15, wherein said mammal with constantly growing incisors is selected from the group consisting of rat, rabbit, mouse, hamster, guinea pig, squirrel and beaver.

17. (New) The model of claim 15, further comprising means for locally administering the test compound through said window proximate said mandibular incisor.

18. (New) The model of claim 17, wherein the local administering means comprises an osmotic pump.

19. (New) A method of screening potential bone disease therapy substances, said method comprising the steps of:

- a) providing the *in vivo* animal model of claim 15;
- b) locally administering a test substance through the model window proximate said mandibular incisor; and
- c) determining at least one histological or histomorphometric parameter of alveolar bone of said mandibular incisor and comparing to a normal incisor;

wherein an increase in anabolic activity in the model or a decrease in catabolic activity in the model is indicative of a potentially useful bone disease therapy substance.

20. (New) The method of screening of claim 19, wherein said bone disease is osteoporosis.

21. (New) The method of screening of claim 19, wherein said test substance is administered via a minipump.

22. (New) A method of screening potential tissue repair therapy substances, said method comprising the steps of:

- a) providing the *in vivo* animal model of claim 15;
- b) locally administering a test substance through said window proximate said mandibular incisor; and
- c) determining at least one histological or histomorphometric parameter of alveolar bone of said mandibular incisor and comparing to a normal incisor;

wherein an increase in anabolic activity in the model or a decrease in catabolic activity in the model indicates a potentially useful tissue repair therapy compound.

23. (New) The method of screening of claim 22, wherein the test substance comprises a growth factor or combination of growth factors.

24. (New) The method of screening of claim 22, wherein said test substance is administered via a minipump.

25. (New) A method of screening for a potential anti-cancer therapy substance, said method comprising the steps of:

- a) providing the *in vivo* animal model of claim 15;
- b) locally administering a test substance through said window proximate said mandibular incisor; and
- c) determining the eruption rate of said mandibular incisor and comparing to the eruption rate of a normal incisor;

wherein a decrease in eruption rate is indicative of a potentially useful cell division controlling anti-cancer therapy substance.

26. (New) The method of screening of claim 25, wherein said test substance is administered via a minipump.

27. (New) A method for determining the role of extracellular matrix molecules, said method comprising the steps of:

- a) providing the *in vivo* animal model of claim 15;
- b) locally administering a test substance that affects secretion and/or postranslational modifications of the extracellular matrix molecules through said window proximate said mandibular incisor; and
- c) determining at least one histological or histomorphometric parameter of the alveolar bone or other tissues of the mandibular incisor and comparing to corresponding parameter(s) of a normal incisor;

wherein a difference in at least one of cell organization, extracellular matrix organization and mineral deposition of the alveolar bone or other tissues of the mandibular incisor is indicative of the role of said extracellular matrix molecules on said model.

28. A method according to claim 27, wherein said test substance is an antagonist to the extracellular matrix molecule.

29. A method according to claim 27, wherein said test substance comprises an antibody directed to the extracellular matrix molecule.

30. (New) A method according to claim 27, wherein the test substance is administered via a minipump.

31. (New) A method of screening for pathogens which produce an immune response, said method comprising the steps of:

- a) providing an *in vivo* animal model comprising a mandibular incisor of a mammal with constantly growing incisors and a window in an alveolar bone overlying the incisor's apex or along radicular surface of the incisor;

- b) locally administering a test pathogen through said window proximate said mandibular incisor; and
- c) detecting presence of tissue alteration or inflammatory cell infiltration in said mandibular incisor;

wherein tissue alteration or inflammatory cell infiltration is indicative of a pathogen which induces an immune response.

32. (New) A method of screening according to claim 31, wherein the test substance is administered by a minipump.

33. (New) A method of screening for biomaterial toxicity, said method comprising the steps of:

- a) providing an *in vivo* animal model comprising a mandibular incisor of a mammal with constantly growing incisors and a window in an alveolar bone overlying the incisor's apex or along radicular surface of the incisor;
- b) locally administering a test biomaterial through said window proximate said mandibular incisor; and
- c) determining at least one of cell death, cell division and matrix production of the bone and tooth of the mandibular incisor and comparing to a normal incisor;

wherein an increase in catabolic activity or a decrease in anabolic activity is indicative of biomaterial toxicity.

34. (New) A method according to claim 33, wherein the test biomaterial is administered via a minipump.

35. (New) A method of testing genetic material transfer efficiency, said method comprising the steps of:

- a) providing an *in vivo* animal model comprising a mandibular incisor of a mammal with constantly growing incisors and a window in an alveolar bone overlying the incisor's apex or along radicular surface of the incisor;

- b) locally administering a test expression construct, which encodes for a marker gene or a gene of interest, through said window proximate said mandibular incisor; and
- c) detecting expression of said marker or gene of interest in the continuously growing incisor to assess efficiency of said expression construct to transduce the tooth organ and associated tissues.

36. (New) A method according to claim 35, wherein the test expression construct is administered via a minipump.